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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet	1	of	5	Application Number	10/534,660
				Filing Date	11/28/2005
				First Named Inventor	Gunther Harth
				Group Art Unit	1617
				Examiner Name	Unassigned
				Attorney Docket Number	51326-00005 NAT

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
/RI/		3,888,837	06/10/75	Tsumita et al.	
↓		3,943,119	03/09/76	Tsumita et al.	
		4,123,427	10/31/78	Dniel	
		4,285,931	08/25/81	Limjuco et al.	
		4,460,503	07/17/84	Savrda et al.	
		4,724,144	02/09/88	Rook et al.	
		4,777,130	10/11/88	Maes	
		4,889,800	12/26/89	Shinnick et al.	
		4,906,742	03/06/90	Young et al.	
		4,952,395	08/28/90	Shinnick et al.	
		4,965,192	10/23/90	Maes	
		4,976,958	12/11/90	Shinnick et al.	
		5,108,745	04/28/92	Horwitz	
		5,154,923	10/13/92	Van Eden et al.	
		5,169,940	12/08/92	Patarroyo	
		5,171,839	12/15/92	Patarroyo	
		5,225,324	07/06/93	McFadden et al.	
		5,254,459	10/19/93	Patarroyo	
		5,268,170	12/07/93	Van Eden et al.	
	↓		6,013,660	01/11/00	Horwitz et al.

FOREIGN PATENT DOCUMENTS

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		Office ³	Number ⁴	Kind Code ⁵				
/RI/		EP	0499003		08/1992			
		EP	0519218		12/1992			
		GB	2239246		06/1991			
		WO	85/03639		08/1985			

Examiner Signature	/Roy Issac/ (04/05/2007)	Date Considered	04/05/2007
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Sheet	2	of	5	Application Number	10/534,660
				Filing Date	11/28/2005
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		Office ³	Number ⁴	Kind Code ⁵				
/RI/		WO	88/02027		03/1988			
		WO	88/05823		08/1988			
		WO	88/06626		09/1988			
		WO	89/05825		06/1989			
		WO	89/12455		12/1989			
		WO	90/00594		01/1990			
		WO	90/02564		03/1990			
		WO	90/10449		09/1990			
		WO	90/15873		12/1990			
		WO	91/04272		04/1991			
		WO	91/14448		10/1991			
		WO	92/01783		02/1992			
		WO	92/01796		02/1992			
		WO	92/04462		03/1992			
		WO	92/16628		10/1992			
		WO	92/21376		12/1992			
		WO	92/21697		12/1992			
		WO	92/22326		12/1992			
		WO	93/07897		04/1993			
		WO	93/14118		07/1993			
		WO	93/14789		08/1993			
		WO	94/02508		02/1994			
		WO	95/01440		01/1995			
		WO	95/01441		01/1995			
		WO	95/14713		06/1995			
		WO	04/45539		06/2004			

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				Group Art Unit	1617
				Examiner Name	Unassigned
				Attorney Docket Number	51326-00005 NAT

NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
/RI/		Abbott et al., "Structure prediction and active site analysis of the metal binding determinants in γ -glutamylcysteine synthetase," J. Biol. Chem. 276:42099-107 (2001)	
		Bartsch et al., "Stereospecific production of the herbicide phosphinothricin (Glufosinate) by transamination: cloning, characterization, and overexpression of the gene encoding a phosphinothricin-specific transaminase in Escherichia coli," App. Environ. Microbiol. 56:7-12 (1990)	
		Campbell et al., "Analytical and Preparative Separation of Diastereomers of L-Buthionine-SR-Sulfoximine, a Potent Inhibitor of Glutathione Biosynthesis," Anal. Biochem. 194:268-77 (1991)	
		Chamberlin et al., "Design and synthesis of conformationally constrained inhibitors of highly-affinity, sodium dependent glutamate transporters," Meth. Enzymol. 296:175-89 (1998)	
		Cooper et al., "Enzymatic reactions of methionine sulfoximine. Conversion to the corresponding α -imino and α -keto acids and to α -ketobuyrate and methane sulfinimide," J. Biol. Chem. 251:6674-82 (1976)	
		Database CAPLUS, Chemical Abstracts on STN, (Columbus Ohio, USA), Abstract No. 50 :49285, SVACHULOVA, Effect of L-Ascorbic Acid on the Growth and Metabolism of Mycobacteria Tuberculosis, Rozhledy Tuberk, 1956, Vol. 16, pp. 203-206	
		Eisenberg et al., "Structure-function relationships of glutamine synthetases," Biochim. Biophys. Acta. 1477:122-45 (2000)	
		Gershoff et al., "The relative effect of methionine sulfoximine on different animal species," J. Nutr. 45:451-8 (1951)	
		Gill et al., "Multicopy crystallographic refinement of a relaxed glutamine synthetase from Mycobacterium tuberculosis highlights flexible loops in the enzymatic mechanism and its regulation," Biochemistry 41:9863-72 (2002)	
		Gill et al., "The crystal structure of phosphinothricin in the active site of glutamine synthetase illuminates the mechanism of enzyme inhibition," Biochemistry 40:1903-12 (2001)	
		Griffith "Mechanism of action, metabolism, and toxicity of buthionine sulfoximine and its higher homologs, potent inhibitors of glutathione biosynthesis," J. Biol. Chem. 257:13704-12 (1982)	

Examiner
Signature

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				Group Art Unit	1617
				Examiner Name	Unassigned
				Attorney Docket Number	51326-00005 NAT

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/RI/		Griffith et al., "Differential inhibition of glutamine and γ -glutamylcysteine synthetases by α -alkyl analogs of methionine sulfoximine that induce convulsions," J. Biol. Chem. 253:2333-8 (1978)	
		Griffith et al., "Inhibition of glutathione biosynthesis by prothionine sulfoximine (S-n Propyl-Homocysteine Sulfoximine), a selective inhibitor of γ -glutamylcysteine synthetase," J. Biol. Chem. 254:1205-10 (1979)	
		Griffith et al., "Potent and Specific Inhibition of Glutathione Synthesis by Buthionine Sulfoximine (S-n-Butyl-Homocysteine Sulfoxime)," J. Biol. Chem. 254:7558-60 (1979)	
		Griffith et al., "Vitamin C protects adult guinea pigs against tissue damage and lethality caused by buthionine sulfoximine-mediate glutathione depletion," FASEB J. 5:A1182 (1991)	
		Griffith, Amino acid sulfoximines: α -ethylmethionine sulfoximine. Meth Enzymol 143:286-91, 1987	
		Griffith et al., Resolution of cysteine and methionine enantiomers, Meth Enzymol 143:166-72, 1987	
		Harth et al., "Treatment of Mycobacterium tuberculosis with antisense oligonucleotides to glutamine synthetase mRNA inhibits glutamine synthetase activity, formation of the poly-L-glutamine/glutamate cell wall structure, and bacterial replication," Proc. Natl. Acad. Sci. USA 97:418-23 (2000)	
		Hoerlein "Glufosinate (phosphothricin), a natural amino acid with unexpected herbicidal properties," Rev. Environ. Contamin. Toxicol. 138:73-145 (1994)	
		Liaw et al., "Structural Model for the Reaction Mechanism of Glutamine Synthetase, Based on Five Crystal Structures of Enzyme-Substrate Complexes," Biochemistry 33:675-81 (1994)	
		Logusch et al., "Inhibition of Escherichia coli glutamine synthetase by α - and γ -substituted phosphinotricins," Biochemistry 29:366-72 (1990)	
		Logusch et al., "Substrate variability as a factor in enzyme inhibitor design: Inhibition of ovine brain glutamine synthetase by α - and γ -substituted phosphinotricins," Biochemistry 28:3043-51 (1989)	
↓		Manning et al., "Identification of L-Methionine-S-sulfoximine as the Diastereomer of L-Methionine-SR-sulfoximine that Inhibits Glutamine Synthetase," Biochemistry 8:2681-5 (1969)	

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